UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,894	07/03/2001	Steven S. Watanabe	112056-0003	7035

				EXAMINER
24267	7590	03/18/2004		LEROUX, ETIENNE PIERRE

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ART UNIT	PAPER NUMBER
2171	6

DATE MAILED: 03/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _26 January 2004_ .

2a) ☒ This action is **FINAL**.　　　2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-19_ is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-19_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _03 July 2001_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

　　If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a) ☐ All b) ☐ Some * c) ☐ None of:

　　　　1. ☐ Certified copies of the priority documents have been received.

　　　　2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

　　　　3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
　　　　　application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

　　a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) ☐ Notice of Informal Patent Application (PTO-152)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .	6) ☐ Other: .

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   Claims 1-4 and 8-19 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pat

No 5,440,726 issued to Fuchs et al (hereafter Fuchs '726).

<u>Claim 1</u>:

Fuchs '726 discloses:

- a log in the backup memory containing storage system transaction entries accumulated

  after a consistency point at which time results of the transaction entries are committed to

  the disk array [col 3, lines 28-33]

- an initiator process that establishes a swarm of messages with respect to the transaction

  request entries and delivers the swarm to the file system [abstract],

- and a disk information retrieval process in the file system that is carried out on the swarm

  of messages in parallel [Fig 1, items 50, 52, 54 and col 5, lines 57-65]

<u>Claim 2</u>:

Fuchs '726 discloses wherein each of the messages of the swarm is identified by a

transaction block including a pointer to one of the transaction request entries in the log,

respectively, and a state that indicates whether each of the messages is one of (a) newly

transferred to the file system [col 3, lines 17-26].

Claim 3:

Fuchs '726 discloses wherein the prerequisite event is completion of the load phase and a

modify phase with respect to another of the messages [col 14, lines 11-32]

Claim 4:

Fuchs '726 discloses wherein the initiator process is adapted to retransfer each of the

messages incapable of being subject to a load phase until the prerequisite event occurs to the file

system for completion of the load phase after the prerequisite event occurs respectively [col 16,

lines 39-53]

Claim 8:

Fuchs '726 discloses wherein the backup memory comprises a non-volatile random

access memory (NVRAM) [col 3, line 5].

Claim 9:

Fuchs '726 discloses wherein the storage system comprises a network storage appliance

[title]

Claim 10:

Fuchs '76 discloses:

- accumulating in a log in the backup memory, storage system transaction request entries

  after a consistency point at which time results of the transaction request entries are

  committed to the disk array [col 3, lines 28-33]

- establishing a swarm of messages with respect to the transaction request entries and

  delivering the swarm to the file system [abstract] and

- performing a disk information retrieval process of the file system o the swarm of

  messages in parallel [Fig 1, items 50, 52 54 and col 5, lines 57-65].

Claim 11:

Fuchs '726 discloses wherein each of the messages of the swarm is identified by a

transaction block including a pointer to one of the transaction request entries in the log,

respectively, and a state that indicates whether each of the messages is one of (a) newly

transferred to the file system [col 3, lines 17-26].

Claim 12:

Fuchs '726 discloses wherein the prerequisite event is completion of the load phase and a

modify phase with respect to another of the messages [col 14, lines 11-32]

Claim 13:

Fuchs '726 discloses wherein the initiator process is adapted to retransfer each of the

messages incapable of being subject to a load phase until the prerequisite event occurs to the file

system for completion of the load phase after the prerequisite event occurs respectively [col 16,

lines 39-53]

Claim 14:

Fuchs '726 discloses wherein the storage system comprises a network storage appliance

[Fig 1, item 12 and col 5, lines 57-65]

Claim 15:

Fuchs '726 discloses:

- accumulating in a log in the backup memory, storage system transaction request entries

   after a consistency point at which results of the transaction request entries are committed

   to the disk array [col 3, lines 28-33]

- establishing a swarm of messages with respect to the transaction request entries and

   delivering the swarm to the file system [abstract] and

- performing a disk information retrieval process of the file system on the swarm of

   messages in parallel [Fig 1, items 50, 52 and 54, and col 5, lines 47-65].

Claim 16:

Fuchs '726 discloses:

establishing for each of the messages of the swarm, a transaction block including a pointer to one

of the transaction request entries in the log, respectively, in the log and a state that indicates

whether each of the messages is one of :

(a) newly transferred to the file system [col 3, lines 17-26],

Claim 17:

Fuchs '726 discloses wherein the prerequisite event is completion of the load phase and a

modify phase with respect to another of the messages [col 14, lines 11-32]

Claim 18:

Fuchs '726 discloses wherein the initiator process is adapted to retransfer each of the

messages incapable of being subject to a load phase until the prerequisite event occurs to the file

system for completion of the load phase after the prerequisite event occurs respectively [col 16,

lines 39-53]

Claim 19:

Fuchs '726 discloses wherein the storage system comprises a network storage appliance

[Fig 1, item 12 and col 5, lines 57-65].

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fuchs '726 in view

of Pub No 2003/0131190 issued to Park et al (hereafter Park '190).

Claim 5:.

Fuchs '726 discloses the elements of claim 4 as noted above.

Fuchs '726 fails to disclose wherein the initiator is adapted to establish a skip state with

respect to a skipped messages for which a portion of the disk array associated therewith is

unavailable, the skip state thereby omitting the skipped messages from the swarm

Park '190 discloses wherein the initiator is adapted to establish a skip state with respect

to a skipped messages for which a portion of the disk array associated therewith is unavailable,

the skip state thereby omitting the skipped messages from the swarm [paragraph 9].

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify Fuchs '726 to include wherein the initiator is adapted to establish a skip

state with respect to a skipped messages for which a portion of the disk array associated

therewith is unavailable, the skip state thereby omitting the skipped messages from the swarm as

taught by Park '190.

The ordinarily skilled artisan would have been motivated to modify Fuchs '726 per the

above for the purpose of purpose of skipping defective sectors [paragraph 9].

5.   Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuchs

'726 in view of US Pat No 6,330,570 issued to Crighton (hereafter Crighton '570).

Claim 6:

Fuchs '726 discloses the elements of claim 4 as noted above.

Fuchs '726 fails to disclose wherein the file system includes a panic state adapted to alert

an operator if a message received from the initiator in the swarm is a message incapable of being

subject to a load phase until a prerequisite event occurs.

Crighton '570 discloses a failure in reading a file or writing the file to the backup

apparatus triggers a warning message [col 2, lines 34-36].

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the combination of Fuchs '726 and Crighton '570 to obtain wherein the file

system includes a panic state adapted to alert an operator if a message received from the initiator

in the swarm is a message incapable of being subject to a load phase until a prerequisite event

occurs.

The ordinarily skilled artisan would have been motivated to modify the combination of

Fuchs '726 and Crighton '570 as per the above for the purpose of alerting an operator if a

backup has not been successfully completed [col 2, lines 26-30].

Claim 7:

Fuchs '726 discloses the elements of claim 4 as noted above.

Fuchs '726 fails to disclose wherein the file system includes a panic state adapted top

alert an operator if a message is retransferred by the initiator process is a message incapable of

being subject to a load phase until a prerequisite event occurs.

Crighton '570 discloses a failure in reading a file or writing the file to the backup

apparatus triggers a warning message [col 2, lines 34-36].

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the combination of Fuchs '726 and Crighton '726 to include wherein the file

system includes a panic state adapted top alert an operator if a message is retransferred by the

initiator process is a message incapable of being subject to a load phase until a prerequisite event

occurs.

The ordinarily skilled artisan would have been motivated to modify the combination of

Fuchs '726 and Crighton '570 as per the above for the purpose of alerting an operator if a

backup has not been successfully completed [col 2, lines 26-30].

Response to Arguments

Applicant's arguments filed 1/26/2004 have been fully considered but they are not

persuasive.

First Applicant Argument:

Applicant states, beginning from the fifth paragraph on page 6 and continuing to the end

of the second paragraph on page 7, the following:

The Examiner rejected claims 1-4 and 8-19 under 35 U.S.C. § 102(b) as being anticipated by

U.S. Patent No. 5,440,726 issued to Fuchs et al (hereinafter "Fuchs"). Applicants respectfully

traverse these rejections. Exemplary claim 1 includes, in part, the limitations of "an initiator

process that establishes a swarm of messages with respect to the storage system transaction

entries and delivers the swarm to the file system;" The Examiner stated that this limitation is

described in Fuchs in the Abstract. The Applicants disagree. Fuchs describes in the Abstract a

progressive retry system based on checkpointing, message logging and message replaying. Fuchs

describes the message replaying in further detail in column 18, lines 20-column 19, line 31.

Fuchs does not teach or suggest establishment of a "swarm of messages with respect to the

storage system transaction entries" (emphasis added) nor does it deliver the swarm to the file

system, as claimed. Fuchs first restores the faulty process to the latest checkpoint (column 18,

lines 25-28) and then replays the received messages since the last actual checkpoint in the

receiver log file (column 18, lines 25-30). Fuchs does not teach the creation of a "swarm of

messages," but instead processes messages in seriatum. This was recognized by the Applicants as

a prior art technique, and described by the Applicants in the Background of the Invention on

page 4, lines 3-10 of the application as filed. Conversely, as defined by the Applicants in the

specification, namely on page 12, line 30 - page 13, line 2, the swarm of messages is a separate

construct comprised of an arbitrary and predetermined number of logged messages. The swarm

is passed to the file system as a single group. See page 13, lines 7-8. Fuchs does not teach or

suggest the creation of a separate construct comprising of a number of messages, but instead

simply replays the messages in seriatum to the recovered process. Thus, Fuchs does not

anticipate the claim limitation of establishing a "swarm of messages."

First Examiner Response:

Examiner is not persuaded. Applicant discloses above "Conversely, as defined by the

Applicants in the specification, namely on page 12, line 30 - page 13, line 2, the swarm of

messages is a separate construct comprised of an arbitrary and predetermined number of logged

messages." Based on above definition by Applicant, examiner maintains the following

disclosure by Fuchs, column 5, lines 19-32, reads on the claimed "an initiator process that

establishes a swarm of messages with respect to the storage system transaction entries and

delivers the swarm to the file system."

> A fault tolerant computing system 5 according to the present invention is
> shown in FIG. 1. As discussed further below, the fault tolerant computing
> system 5 provides facilities for monitoring a plurality of concurrent application
> processes which communicate by means of a message passing mechanism. The
> fault tolerant computing system 5 will detect faults in an application process
> which cause the application process to crash or hang. Thereafter, the fault
> tolerant computing system 5 will initiate a recovery of the application process.
> According to one feature of the invention, **a progressive retry recovery
> algorithm is utilized which gradually increases the scope of the recovery**
> when a previous retry step fails.

Furthermore, Applicant states above "Fuchs does not teach the creation of a "swarm of

messages," but instead processes messages in seriatum." Examiner is unable to respond as it us

unclear to which teaching in Fuchs Applicant is referring. Examiner is unable to fin the phrase

"in seriatum" in the Fuchs reference.

Second Applicant Argument:

Applicant states in the second paragraph on page 8 "Claim 10 is an independent method

claim and claim 15 is a computer readable medium claim that both include the limitation of:

"establishing a swarm of messages with respect to the transaction request entries and delivering

the swarm to the file system." As noted above with reference to claim 1, Fuchs does not teach

the creation of a swarm of messages, but instead replays messages in seriatum to recover a failed

system. For the reasons noted above in reference to claim 1, Fuchs does not anticipate claims 10

and 15 under 35 U.S.C. § 102(b).

Second Examiner Response:

Examiner is not persuaded. Applicant is referred to supra First Examiner Response.

Third Applicant Argument:

Applicant states the following in the fourth paragraph on page 8:

The Examiner rejected claim 5 under 35 U. S. C. §103 (b) as being unpatentable over Fuchs in

view of Pub. No. 2003/0131190 issued to Park et al (hereinafter "Park"). Claim 5 is a dependent

claim that depends from claim 4, which is allowable at least because it depends from an

allowable base claim. For the reasons stated above in reference to claim 1, Fuchs does not teach

the limitation of establishing a "swarm" of messages. As such, claim 5 is allowable at least

because it depends from an allowable base claim.

Third Examiner Response:

Examiner is not persuaded. Applicant is referred to supra First Examiner Response.

Fourth Applicant Argument:

Applicant states the following in the fifth paragraph on page 8:

The Examiner rejected claims 6 and 7 under 35 U. S. C. § 103 (a) as being unpatentable over

Fuchs in view of the U.S. Patent No. 6,330,570 issued to Crighton (hereinafter "Crighton").

Claims 6 and 7 are dependent claims that depend from claim 4, which is allowable at least

because it depends from an allowable base claim. For the reasons stated above in reference to

claim 1, Fuchs does not teach the limitation of establishing a "swarm" of messages. As such,

claims 6 and 7 are allowable at least because they depend from an allowable base claim.

Fourth Examiner Response:

Examiner is not persuaded. Applicant is referred to supra First Examiner Response.

Fifth Applicant Argument:

Applicant states the following in the second paragraph on page 9:

The other references of record have been further reviewed and the claims are believed to be

neither anticipated nor made obvious by these references, taken either alone or in combination.

Accordingly, all independent claims are believed to be in condition for allowance, and all

dependent claims are believed to be dependent from allowable independent claims, and so in

condition for allowance. Therefore, Applicants respectfully request the issuance of a Notice of

Allowance in this application.

Fifth Examiner Response:

Examiner is not persuaded. Examiner is perplexed by above assertion since all claims are

element by element, clearly identified and rejected in supra Office Action. Furthermore,

examiner notes Rule 37CFR 1.111(b) requires Applicant to "distinctly and specifically

point out errors" in the examiner's action. Also, arguments or conclusions of Applicant

cannot take the place of evidence. *In re Cole*, 51 CCPA 919, 326F.2d 769, 140 USPQ

230 (1964).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Etienne LeRoux whose telephone number is (703) 305-0620. The examiner can normally be reached on Monday – Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic, can be reached on (703) 308-1436.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Etienne LeRoux

3/15/2004

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